Number Sense Exam 102, 1/30/2021

(1) $15 + 24 + 33 + 42 + 51 =$ _____

(2) $3\frac{1}{2} + 20\frac{1}{5} =$ _____ (mixed number)

(3) CCCXIV + CDXIV = _____ (Arabic Numeral)

(4) $1421 + 594 =$ _____

(5) $30.6 \div .4 =$ _____ (decimal)

(6) $92\% =$ _____ (proper fraction)

(7) $13^3 =$ _____

(8) $3212015 \div 9$ has a remainder of _____

(9) 40% of $(.4 + \frac{1}{4}) =$ _____

*(10) $951 - 246 - 837 =$ _____

(11) CMIX − CDIV = _____ (Arabic Numeral)

(12) MMLIII + CCXIII = _____ (Arabic Numeral)

(13) The mode of $4, 3, 7, 4, 2, 7, 5$, and 4 is _____

(14) The largest prime divisor of 65 is _____

(15) $12^3 =$ _____

(16) The number 110 has ____ distinct positive prime divisors.

(17) $40 \times 23 - 17 \times 23 =$ _____

(18) $1 + 3 + 6 + 10 + 15 + 21 =$ _____

(19) $\left(9\frac{2}{3}\right)^2 =$ _____ (mixed number)

*(20) $\sqrt{780} \times \sqrt{1080} =$ _____

(21) $41 \times 44 =$ _____

(22) 234 base 10 equals _____ base 5

(23) 48 has _____ positive integral divisors

(24) Let $A = -1$, $B = -A$, and $C = AB$, then $A - B - C =$ _____

(25) $(2 + 3^2 \times 4^3) \div 5$ has a remainder of _____

(26) $63^2 - 47^2 =$ _____

(27) If $\frac{8}{x} = \frac{x}{10}$ and $x > 0$, then $x =$ _____

(28) $1.444\ldots + 2.333\ldots =$ _____ (improper fraction)

(29) Which is larger: -0.83 or $-\frac{5}{6}$? _____

*(30) $3\frac{1}{5} \times 12515 \div 16 =$ _____

(31) The square has a perimeter of 48 in. and a diagonal of $k\sqrt{2}$ in. Find k. _____

(32) $312_7 =$ _____ 10

(33) The roots of a cubic equation are 1, 2, and 3. The equation is $x^3 - 6x^2 + 11x =$ _____

(34) The LCM of $12, 18$, and 20 is _____

(35) If $(5x + 3)^2 = ax^2 + bx + c$, then $a + b + c =$ ____

(36) The product of the largest prime even integers and the smallest prime odd integer is _____

(37) $12.5 \times 480 =$ _____

(38) If 8 is to 9 as 10 is to x, then $x =$ _____

(39) If $\sqrt{150} - \sqrt{54} = \sqrt{x}$ then $x =$ _____

*(40) $16\frac{1}{2}\%$ of $598 \times 11 =$ _____

(41) $369 \times 101 =$ _____

(42) The fifth pentagonal number is _____

(43) The hypotenuse of a right triangle with integral sides is 41in. The shortest leg is _____ in.

(44) Let r, s, and t be the roots of $2x^3 + 4x = 5$. Then $r \times s \times t =$ _____

(45) The complementary angle of $74°$ is _____ $°$

(46) $32 \times 1111 =$ _____

(47) The midpoint between the points $(-5, 4)$ and $(3, -5)$ is (h, k). Find $h + k$. _____

(48) The product of the roots of $(2x + 3)^2 = 0$ is _____

(49) The cube root of 389017 is _____

*(50) $12 \times 24 \times 36 \times 48 =$ _____

(51) The probability of selecting an even integer between 1 and 11 is _____ (proper fraction)

(52) The larger root of $6x^2 - 7x - 5 = 0$ is _____

(53) The legs of a right triangle are 5 and 12. The length of the altitude to the hypotenuse is _____

(54) If $x^2 + y^2 = 169$, $x > y$ and both x and y are positive integers, then $x - y =$ _____

(55) ${}_5\mathrm{P}_3 =$ _____

(56) The axis of symmetry of $x = y^2 - 3$ is $y =$ _____

(57) $62 \times 68 = 16 =$ _____

(58) The smaller root of $3x^2 - 14x + 11 = 0$ is _____

(59) When two dice are tossed, the probability that the sum of the faces will be 7 is _____

*(60) $4^2 \times 18^3 \div 24^2 =$ _____

(61) $3\cos^2 30° + 3\sin^2 30° =$ _____

(62) $\cos^2 30° - \sin^2 30° =$ _____

(63) How many 3-digit integers end in a 5? _____

(64) $43_5 =$ _____ $_7$

(65) 480 miles per hour _____ feet per second

(66) The product of the coefficients of $(a - b)^4$ is _____

(67) $95°$ F = _____ $°$ C

(68) X varies inversely as Y. If $X = 16$ when $Y = 4$, find Y when $X = 12$. _____

(69) If $Z \div 101 = 212$, then $Z =$ _____

*(70) $(1 + 2 + 3 + \ldots + 29)^2 =$ _____

(71) $\lim\limits_{x \to 2} \left(\dfrac{x^2 - 1}{x - 2} \right) =$ _____

(72) $f(x) = x + \dfrac{1}{x}$ has _____ asymptotes

(73) If $f(x) = \dfrac{4x + 3}{2x - 1}$, then $f'(1) =$ _____

(74) Find the slope of the tangent to $y = x^2 - 1$ at $(2, 3)$. _____

(75) If $h(x)$ is the slant asymptote of $f(x) = \dfrac{x^2 - 3x + 1}{x - 3}$, then $h(1) =$ _____

(76) $12^{10} \div 8$ has a remainder of _____

(77) The n-th term of $4, 7, 10, 13, \ldots$ is _____

(78) $\displaystyle\int_0^4 \sqrt{x}\, dx =$ _____

(79) $0.141414\ldots_6 =$ _____ $_6$ (proper fraction)

*(80) $(2\pi) \times (3\pi) \times (2\pi) =$ _____